National Weather Service Winter Weather Briefing

November 17, 2010

Weather vs. Highway Safety

There are two occasions when highway fatalities go up; when the weather is very good and when the weather is very bad.

-Trooper Stu Recke

Weather vs. Highway Safety

- Fatalities in traffic crashes reached 43,510 in 2005. This was the highest number of fatalities since 1990.
- Since this peak, reported fatalities have steadily declined every year, down to 37,261 in 2008.
- Fatalities reported by NHTSA for 2008 decreased by almost 10 percent to the lowest level since 1961.

Weather Vs. Highway Safety

- Fatalities declined again in 2009 (down to 33,963)
- Between 2005 and 2009 motor vehicle traffic crash fatalities have declined almost 22 percent.

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WHY?

Weather Vs. Highway Safety

Kentucky

- 27,000 Miles of Highway

  85% of all Travel

- 780 Miles of Interstate

  25% of all Travel

  Avg. 42,970 Vehicles/Day

- 9,000 Bridges

Weather Vs. Highway Safety

Kentucky Transportation Cabinet

- $1.4 Billion Annual Budget

Weather Vs. Highway Safety

Kentucky Transportation Cabinet

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- Maintains 550,000 Highway Signs

Weather Vs. Highway Safety

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Weather Vs. Highway Safety

Kentucky Transportation Cabinet

- $1.4 Billion Annual Budget
- Maintains 550,000 Highway Signs
- Install/Replace 75,000 Highway Signs Per Year
- Average Sign cost = $200

Weather Vs. Highway Safety

Kentucky Transportation Cabinet D-1

- Covers KY's 12 Westernmost Counties

Kentucky Transportation Cabinet District 1

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- About 320 Employees

Kentucky Transportation Cabinet District 1

- Covers KY's 12 Westernmost Counties
- About 320 Employees
- About 90% are involved in some phase of snow/ice response

Kentucky Transportation Cabinet District 1

- 2800 lane miles of highway
- 130 miles of Interstate 24 and parkways
- 1500 Bridges
- 11 Long Span Bridges/major river crossings

Kentucky Transportation Cabinet District 2

- 11 Counties (Pennyrile & Green River)
- 3300 lane miles of highway
- Most Interstate & Pkwy Miles in State
- 1890 Bridges
- 9 Long Span Bridges/major river crossings

Kentucky Transportation Cabinet District 1 & 2

- 23 Westernmost Counties
- 6100 lane miles of highway
- 367 miles of Interstate and Parkways
- 3300 Bridges-1/3rd of State Total
- 20 Long Span Bridges/major river crossings

Importance of Weather Response

- For every **Minute** that a Roadway is closed, the odds of a Secondary Accident goes up **3%**

- According to FHWA, for every **Hour** that an interstate is closed, **$1,000,000** is lost in productivity


WELCOME
MARION CHURCH
OF
GOD
AND
CHRISTIAN
SCHOOL


WELCOME
MARION CHURCH
OF
GOD
AND
CHRISTIAN
SCHOOL


WHEN YOU
CAN'T COPE
JESUS
OFFERS HOPE


WHEN YOU
CAN'T COPE
JESUS
OFFERS HOPE


Welcome To
PLEASANT HILL
REGULAR BAPTIST CHURCH


JOHN DEERE
544G
GMC


GHWAYS
000-9459
HYD OIL
C2 DR C3


STOP
GMC

Weather vs. Transportation

- Average of 10.5 inches of snow/year
- Comes in about 3 events of 3 in accumulation
- Median Early Snow is Dec. 22nd
- Most accumulating snow in Jan. & Feb.

Weather vs. Transportation

Why is an accurate weather forecast important?

Weather vs. Transportation

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2009-2010 District 1 Costs

Weather vs. Transportation

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$2.1 Million total July 1, 2009-July 1, 2010

Weather vs. Transportation

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74,926 man hours worked

Weather vs. Transportation

Why is an accurate weather forecast important?

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$27.7 Million total July 1, 2009-July 1, 2010

74,926 man hours worked

90,867 tons of salt @ $70/ton

Weather vs. Transportation

Why is an accurate weather forecast important?

2009-2010 District 1 Costs

$27.7 Million total July 1, 2009-July 1, 2010

74,926 man hours worked

90,867 tons of salt @ $70/ton

286,196 gallons of calcium @ 76 cents/gal

Weather vs. Transportation

Why is an accurate weather forecast important?

2009-2010 District 1 Costs

$27.7 Million total July 1, 2009-July 1, 2010

74,926 man hours worked

90,867 tons of salt @ $70/ton

286,196 gallons of calcium @ 76 cents/gal.

1.15 million gallons of brine @ 6 cents/gal.

Secret Formula

$$CR = N / \{[Sum\ (ADT)s\ /2] \times 365 \times 10\text{-}6\}$$

KENTUCKY TRANSPORTATION CABINET

Weather vs. Transportation

Average cost for full Snow/Ice response

Is about $150 per snow plow hour

X 75 trucks = $12,500 per hour

X 12 Highway Districts = $150,000 per hour

Weather vs. Transportation

Why is an accurate weather forecast important?

Safety

Weather vs. Transportation

Why is an accurate weather forecast important?

Safety

The public is demanding/expecting a higher level of service when it comes to snow and ice removal.

Weather vs. Transportation

Kentucky was one of about 5 states that helped pioneer pre-treating of highways with brine to help prepare highways for winter weather.


CAUTION
ANTI-ICING
OPERATION

Weather vs. Transportation

Requirements for Pre-Treating

Weather vs. Transportation

Requirements for Pre-Treating

Temperature above 18^{o} F

Weather vs. Transportation

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Less than ½ in. of rain prior to snow/ice
L

Weather vs. Transportation

Requirements for Pre-Treating

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Less than ½ in. of rain prior to snow/ice

2 full days advance notice of winter event

Weather vs. Transportation

Requirements for Pre-Treating

Temperature above 18° F

Less than ½ in. of rain prior to snow/ice

2 full days advance notice of winter event

A forecast of 1 in. of snow or more

Weather vs. Transportation

Pre-Treating

Starts by producing brine

“B” & “C” Snow Routes Treated First

“A” Snow Routes Treated Last

Brine dries to leave a fine power of salt on the road surface available to be activated in the early hours of a winter weather event.

Weather vs. Transportation

Pre-Treating

Pre-treating with brine gives highway crews a head start on snow and ice. Pre-treating can be done during regular hours rather than on overtime (cost saving). This provides flexibility as supervisors call in crews during the start of an event. This provides the public with an extra margin of safety during the early hours of an event by melting initial snowfall.

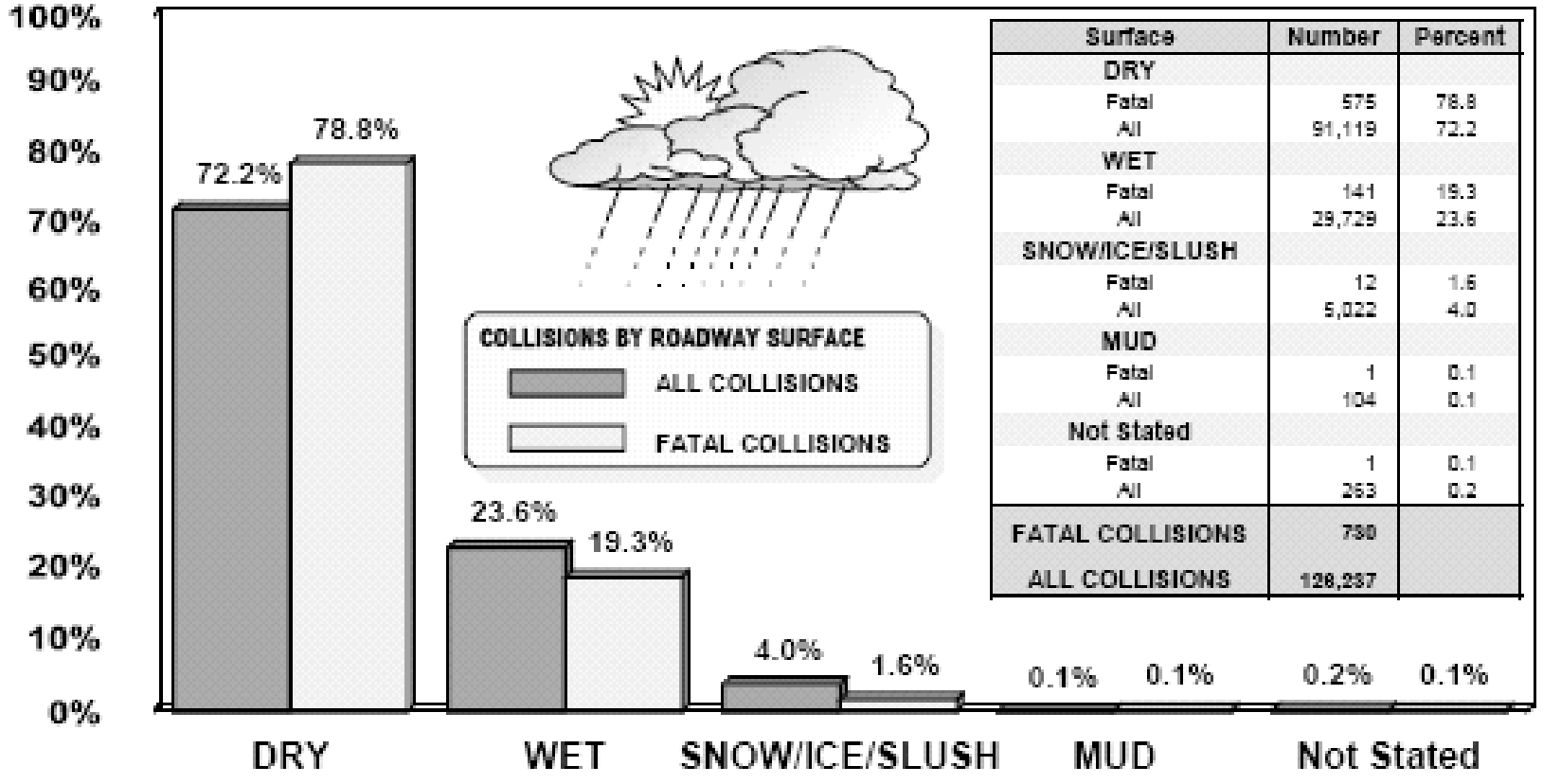

CAUTION
ANTI-ICING
OPERATION
NORTH
787

COLLISIONS BY ROADWAY CONDITIONS AND ROADWAY CHARACTER

The charts below depict percentages and numbers of all collisions and fatal collisions according to the conditions and character of the roadway on which the collision occurred.

The road conditions chart compares fatal collisions with all collisions for different road conditions identified by the police officer who completed the collision investigation report.

As depicted in the bottom chart, 78% of all collisions occurred on straight roads and 22% on curved roads. Thirty-nine (39) percent of the fatal collisions during 2009 occurred on curved roads.



Surface	Number	Percent
DRY		
Fatal	575	78.8
All	91,119	72.2
WET		
Fatal	141	19.3
All	29,729	23.6
SNOW/ICE/SLUSH		
Fatal	12	1.6
All	5,022	4.0
MUD		
Fatal	1	0.1
All	104	0.1
Not Stated		
Fatal	1	0.1
All	263	0.2
FATAL COLLISIONS	730	
ALL COLLISIONS	126,237	

Incidents, Issues & Improvements

- TRIPS signs and cameras
- Collapsible Detour Signs
- FHWA Worker Visibility Rule


Historic Downtown
& Riverfront
EXIT 11


EMS
POLICE


West Kentucky
Community And
Technical College
EXIT 7


RE
NS
IRC
Purity
287

TRIP System

- Travel Reporting & Information in Paducah System
  - 3 Variable Message Signs along Interstate 24
    - VMS #1 @ mile point 2.920
    - VMS #2 @ mile point 5.846
    - VMS #3 @ mile point 9.561
  - 5 Web Cameras along Interstate 24
    - Web Cam #1 @ mile point 2.8
    - Web Cam #2 @ mile point 4.0
    - Web Cam #3 @ mile point 5.0
    - Web Cam #4 @ mile point 5.3
    - Web Cam #5 @ mile point 9.0
  - 1 46” Samsung Widescreen & Dual-Monitor Workstation


Paducah
I24MP4 02/08/2010 14:36:25
I-24 at MP 4


Paducah
I24MP9 2010-02-08 14:43:44
I-24 at MP 9


UTILITY WORK
OCT 16-18
MILE MARKER 21


CAUTION
HEAVY RAMP
TRAFFIC
SWIFT
65

FOLLOW - UP


INTERSTATE
65
DETOUR
27 MILES

Worker Visibility Rule: Content

All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel

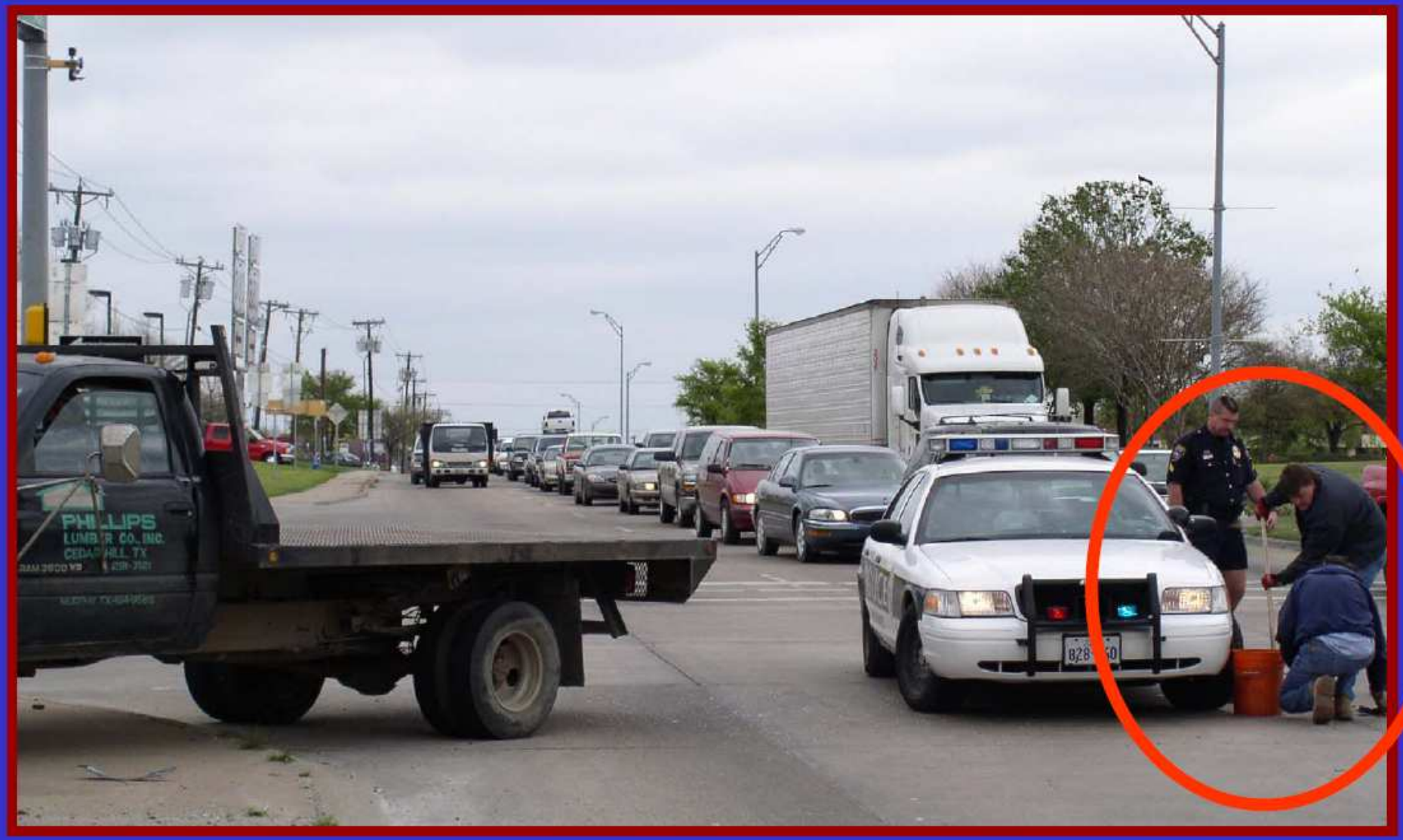
23 CFR Part 634.3


SLOW

Performance Class 2

Typical European crash scene

Typical U.S. crash scene



The shortcoming of wearing NO vest!

ANSI 107 High-Visibility Vest

ANSI 207 Public Safety Vest

Shorter length
to allow access to
items on belt

SPIEWAK

http://www.spiewak.com/uniform

VF Imagewear

www.vfimagewear.com

Guidelines

www.mutcd.fhwa.dot.gov

www.safetyequipment.org


KENTUCKY
TRANSPORTATION
CABINET


safe
patrol


DRIVE SMART
Kentucky Office
of Highway Safety


KENTUCKY
POLICE


RESPOND
RECOVER
EM
PREPARE

QUESTIONS?


Kentucky
UNBRIDLED SPIRIT